both under the ſame or equal Angles) that near the *Horizon* is fanſied the greater. And this I judge to be the true Reaſon of that Appearance.

You will excuſe (I hope) what Excurſion I have made; becauſe though ſome of them might have been ſpared, as to the preſent Caſe; yet they are not impertinent to the Buſineſs of Viſion; and the Eſtimate to be thence made, of *Magnitudes* and *Diſtances*, by the Imagination.

The Sun's Eclipſe *May* 1*ſt*, was here obſerved about ½ a Digit; between one and two a Clock after Noon.

Account of a BOOK.

A Continuation of the New Digeſter *of* Bones: *Its Improvements and new Uſes it hath been apply'd to, both at Sea and Land.*

Together with ſome Improvements and new Uſes of the Air-Pump, *tryed both in* England *and* Italy. *By* D. Papin, M. D. *Fellow of the Royal Society.*

THIS Treatiſe is divided into three Sections; the firſt contains the Improvements made by the Author on the Digeſter; with the new Uſes it hath been apply'd to. Firſt is given the Deſcription of that which he had made for His Majeſty King *Charles* the 2*d.* of bleſſed Memory; and he doth not think (conſidering the Alterations whereby this exceeds the firſt Invention) that any thing better can be made for ſuch things, as muſt be ſtew'd in their own Juices: But for other things that muſt be boil'd with Water, as Pulſe, Gellies, *&c.* He gives the Deſcription of another Engine, which he finds to be, for ſeven

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Reaſons, preferable to the other; ſo as that a ſmall Engine of this Faſhion, if it holds but 6 or 7 Pounds of Water, will be enough to make 150 Pounds of Gelly in 24 Hours, and will not conſume above 11 Pounds of Charcoal. He doth afterwards relate the new Uſes this Engine hath been apply'd to, but for brevity's ſake, I will mention but one that ſeems to be very conſiderable. He hath tryed, that Bones being as much ſalted as Bones can be, if they be left to ſoak in Sea-Water, as they do for the Meat at Sea, they will be fit to make freſh Gelly ſeveral times: So that all the Bones that are thrown away as uſeleſs in long Voyages, may henceforth ſerve to make a Food wholeſomer and better, than the Meat itſelf. The Author doth afterwards relate, how theſe Gellies may be applyed for the preſerving of Summer Fruits: Upon this he alledgeth many Experiments, which give him Occaſion to make ſeveral Obſervations; as for Example, he ſaith that *Strawberries* that are brought up by Art in the latter Seaſon, have much leſs Spirits, than thoſe that ripen in the Spring of the Year: So that ſome *Strawberries* which he had thus ſhut up in the Month of *October*, became very ſower in 3 Months time; whereas other *Strawberries* which he ſhut up in the Month of *June*, having been kept 8 Months, were not ſower at all, but had given a Vinous Taſte to the Gelly: He doth afterwards impart his Way for making and clarifying Gellies, which hath given him Occaſion to contrive two Engines for filtrating quickly, and a Contrivance how to make Evaporations quicker, and with leſs Fire than they uſe to be done, and theſe are very plainly deſcribed in the Book. He gives alſo the Deſcription of an Engine for diſtilling *per deſcenſum* in ſeveral Degrees of Rarefaction and Condenſation of Air; and he gives an Account of ſome Experiments which he hath already made with this Inſtrument, from whence it appears, that in ſome Caſes the Condenſation of the Air will be of great Advantage for a quick Diſtillation.

In the ſecond Section are explain'd the Improvements made by the Author, on the *Pneumatick* Engine; and he doth not think, that ever any hath been ſo good as his: he gives a full Deſcription of it, and takes Notice of all that contributes to its exactneſs; and he relates ſome Experiments that he hath made to prove his Aſſertion: He doth by the by, Anſwer Mr. *Bernoulli*, who hath written ſomething againſt the Honourable Mr. *Boile*, about the weighing of the Air in a Bladder; and afterwards he comes to the new Uſes this Engine hath lately been apply'd to; whereof I will mention but this, that ſeems to be of great Moment, becauſe without any Sugar or any other alteration, than what can be made by a little boiling, he can preſerve great Quantities of Fruit with their Taſt: The Way is this; he ſhuts up the Fruits in Glaſs Veſſels exhauſted of the Air, and then puts the Veſſel thus exhauſted in hot Water, and lets it ſtand their for ſome while; and that is enough to keep the Fruit from the Fermentation, which otherwiſe would undoubtedly happen: Yet it is obſervable, that this is not generally true: but that it is good to have ſeveral ways for the preſerving of Fruit: *Raſberries*, for Example, that keep in Gelly better that any other Fruit, cannot be preſerved although they be heated *in vacuo*. Such or the like Obſervations are annexed to almoſt every Experiment, at the latter end of this Section, the Author anſwers ſuch Objections as may be brought againſt the real uſefulneſs of theſe Engines; whereupon he diſcribes a Way how to exhauſt the Air very ſpeedily out of great Veſſels, to be kept thus exhauſted as long as we pleaſe.

The third Section gives a Relation of what hath been done in two Years time, in Mr. *Sarrotti's* Academy at *Venice*; which had ſome Relation to the Matter treated of in this Book: There may be ſeen ſeveral new and curious Experiments about Matters of Moment: But I ſhall only relate two of them, from whence the reader may judge of the reſt; the firſt is, that two equal pieces of *Iron* were put at the ſame time into two equal Quantities of *Aqua-fortis*, the one *in vacuo*, and the other in the open Air; and being afterwards taken out at the ſame time; it was found that the *Iron* in the open Air, had been 16 times more diſſolved than the *Iron in vacuo*.

The ſecond Experiment is, that two equal Quantities of *Roſes* were put into two Inſtruments for Diſtillations, like one another; but the one was exhauſted of Air, and the other was full; the Diſtillation was abundantly greater and quicker in the evacuated Inſtrument, than in the other, although they were both heated by the ſame warm Water; it was alſo obſervable, that the *Roſe* Water diſtilled *in vacuo* did congeal, which doth not happen in ordinary Diſtillations: So it is plain, that in ſome Circumſtances, the *Vacuum* helps Diſtillations; as well as in the firſt Section it was ſeen, that in other Circumſtances the compreſſion of Air is more advantagious. In this whole Section are intermixed the reaſonings of the Academy, about the Matters in hand, and two Diſcourſes made in the Academy, by *Sigr. Ambroſio Sarrotti* in the beginning of each Year: So the Reader may here be diverted as well as inſtructed in the Operations of Nature. It may be ſaid in ſhort, that it is rare to ſee a Book, that in ſo ſmall a Volume doth contain ſo many things recommendable, both for Uſefulneſs and Novelty; but no Wonder, ſince it is owing to the Inſtructions and Directions of the *R. S.* as the Author acknowledgeth in his *Epiſtle*, which he inſcribeth to my Lord of *Carbery*, Preſident of that Illuſtrious Company. Nevertheleſs, the better to convince thoſe that would queſtion either the Truth, or the Uſefulneſs of the Contents of his Book; the Author engageth to let People ſee them try'd once a Week, and he appoints a certain Time and Place for that Purpoſe.

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